

Notice of Allowability

Application No.

10/616,588

Examiner

SOPHIA VLAHOS

Applicant(s)

JEON ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 6/21/2007.
2. ☒ The allowed claim(s) is/are 1-3, 5-11 (renumbered as 1-3,4-10 respectively).
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application:
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Eric S. Hyman (30,139) on 7/11/2007.

The application has been amended as follows:

In the Claims:

Claim 1, line 7 (after the preamble): delete --the-- before phrase "subchannel" insert ---a --- before phrase "subchannel".

Claim 8, line 10 (after the preamble) insert ---wherein--- before phrase "tracking",

line 13, (after the preamble) delete --the-- before phrase "subchannel" insert ---a --- before phrase "subchannel".

Claim 11, (line 1 of the preamble), delete --for-- before phrase "a method for tracking", insert phrase ---which stores instructions for executing--- before phrase "a method for tracking".

Line 7 (after the preamble) delete --the-- before phrase "subchannel" insert ---a --- before phrase "subchannel".

Allowable Subject Matter

2. The following is an examiner's statement of reasons for allowance:

The prior art of the record fails to teach or suggest alone or in combination:

A method for tracking a carrier frequency offset and a sampling frequency offset between a transmitter for concurrently transmitting subcarriers that have orthogonality and a receiver for receiving them, comprising: tracking a phase offset caused by the sampling frequency offset by using the detected received data, including a gradient value of a straight line that corresponds to the phase offset on the time axis by using a linear regression method that includes a phase offset estimate of a pilot signal located on a subchannel, a phase offset estimate of a data signal located on a subchannel, and an added weight, as recited in claim 1, and in combination with other steps of the claim. Claims 1-3, 5-7 are allowed.

The prior art of the record fails to teach or suggest alone or in combination: A device for tracking a carrier frequency offset and a sampling frequency offset in an OFDM (orthogonal frequency division multiplexing) wireless communication system, including a transmitter that concurrently transmits orthogonal subcarriers and a receiver that receives them, comprising: an offset tracker/compensator for tracking a phase offset caused by the carrier frequency offset and the sampling frequency offset, wherein tracking a phase offset caused by the sampling frequency offset includes calculating a gradient value of a straight line that corresponds to the phase offset on the time axis by

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using a linear regression method that includes a phase offset estimate of a pilot signal located on a subchannel, a phase offset estimate of a data signal located on a subchannel, and an added weight, as recited in claim 8 and in combination with other elements of the claim.

Claims 8-10 are allowed.

The prior art of the record fails to teach or suggest alone or in combination: A recording medium which stores instructions for executing a method for tracking a carrier frequency offset and a sampling frequency offset between a transmitter that concurrently transmits orthogonal subcarriers and a receiver that receives them, comprising: tracking a phase offset caused by the sampling frequency offset by using the detected received data, including a gradient value of a straight line that corresponds to the phase offset on the time axis by using a linear regression method that includes a phase offset estimate of a pilot signal located on a subchannel, a phase offset estimate of a data signal located on a subchannel, and an added weight, as recited in claim 1, and in combination with other steps of the claim

Claim 11 is allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

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accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Moose (U.S. 2002/0065047).

Wang et. al., (U.S. 7,203,255)

Thomson et. al., (U.S. 7,184,495)

Matheus et. al., (U.S. 7,009,932)

Gummadi et. al., (U.S. 2003/0210645)

Strait (U.S. 6,847,693)

Bingham (U.S. 5,228,062)

Tore (U.S. 6,310,926).

Ghosh (U.S. 5,802,117)

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SOPHIA VLAHOS whose telephone number is 571 272 5507. The examiner can normally be reached on MTWRF 8:30-17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 571 272 3021. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SV
7/11/2007


MOHAMMED GHAYOUR
SUPERVISORY PATENT EXAMINER